provide different forms of vibratory motion of the contact region in a plane parallel to the planes of the layers.

All Cont

54. (New) A piezoelectric motor according to any of claims 50 wherein the at least one power source controls frequencies of AC voltages used to excite longitudinal and transverse vibrations to selectively provide different forms of vibratory motion of the contact region in a plane parallel to the planes of the layers.

REMARKS

This application is submitted as a National Phase Application of the above-referenced PCT application.

The present amendments are based on the claim set attached to the IPER and not the claims submitted with the originally filed PCT application. Applicants note that all the claims in the claim set attached to the IPER are indicated in the IPER as meeting the criteria of PCT Articles 33(2) - 33(4).

The present amendments are made to place the claims in proper U.S. form. Dependent claim 6 has been amended to delete the limitation of "a single large electrode on the second face surface of at least one but not all layers". Added claims 44 and 50 recite the limitation deleted from dependent claim 6.

Added claims 43 and 49 recite the limitations of cancelled claim 8.

Added claims 45 and 51 recite the limitations of cancelled claim 9, in which the word "parallel" in line 4 of cancelled claim 9 is replaced by the word "perpendicular" in order to better define the invention as claimed.

Added claims 46, 47 and 48 recite the limitations of claims 12, 13 and 14 respectively and added claims 52, 53 and 54 recite the limitations of claims 19, 20 and 21 respectively.

A marked up version of the amendments is attached hereto.

In view of the favorable IPER, applicants submit that the application is in order for allowance. An action on the merits is respectfully awaited.

Respectfully submitted,
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Marked-Up Version of Amendments

3. (Amended) A piezoelectric micromotor according to claim 1 ~~or claim 2~~ and including a wear resistant element situated at the contact region for contact with the body.

4. (Amended) A piezoelectric micromotor according to claim 1 ~~any of the preceding claims~~ comprising electrodes on face surfaces of the layers that are electrifiable by an AC voltage provided by the power supply to excite elliptical vibrations in the vibrator having a controllable eccentricity.

6. (Amended) A piezoelectric micromotor according to claim 1~~any of claims 1-3~~, comprising:

a single large electrode on a first face surface of each layer; and

~~a single large electrode on the second face surface of at least one but not all layers;~~

four quadrant electrodes on the second face surface of at least one layer, wherein the quadrant electrodes are arranged in a checkerboard pattern.

7. (Amended) A piezoelectric micromotor according to claim 6~~5~~ wherein at least two non-contiguous face surfaces have quadrant electrodes.

10. (Amended) A piezoelectric micromotor according to claim 6~~8 or claim 9~~ wherein for at least one layer the at least one power supply electrifies a first pair of diagonally disposed quadrant electrodes with a first AC voltage and a second pair of quadrant electrodes along a second diagonal with a second AC voltage and wherein the first and second AC voltages are 180^{o} out of phase and have a same magnitude, so as to excite transverse vibrations in the piezoelectric vibrator.

12. (Amended) A piezoelectric motor according to claim 4~~3~~ 10 ~~or claim 11~~ wherein the at least one power source controls magnitudes of AC voltages used to excite longitudinal and transverse vibrations to selectively provide different forms and amplitudes of vibratory motion of the contact region in a plane parallel to the planes of the layers.

13. (Amended) A piezoelectric motor according to claim~~any of claims~~ 4~~3~~ 10~~-12~~ wherein the at least one power source controls phases of AC voltages used to excite longitudinal and transverse vibrations to selectively provide different forms of vibratory motion of the contact region in a plane parallel to the planes of the layers.

14. (Amended) A piezoelectric motor according to claim ~~any~~ 43 ~~of claims 10-13~~ wherein the at least one power source controls frequencies of AC voltages used to excite longitudinal and transverse vibrations to selectively provide different forms of vibratory motion of the contact region in a plane parallel to the planes of the layers.

15. (Amended) A piezoelectric micromotor according to claim 6 ~~any of claims 8-14~~ wherein for at least one layer the at least one power supply electrifies a first pair of electrodes along a first short edge of the layer and a second pair of quadrant electrodes along a second short edge with first and second AC voltages respectively that are 180^{o} out of phase and have a same magnitude, so as to excite bending vibrations perpendicular to the planes of the layers in the piezoelectric vibrator.

18. (Amended) A piezoelectric motor according to claim 49 ~~15 or claim 17~~ wherein the at least one power source controls magnitudes of AC voltages used to excite longitudinal and bending vibrations to selectively provide different forms and amplitudes of vibratory motion of the contact region in a plane perpendicular to the planes of the layers.

19. (Amended) A piezoelectric motor according to claim 49 ~~any of claims 15-18~~ wherein the at least one power source controls phases of AC voltages used to excite longitudinal and bending vibrations to selectively provide different forms of vibratory motion of the contact region in a plane perpendicular to the planes of the layers.

20. (Amended) A piezoelectric motor according to claim 49 ~~any of claims 15-19~~ wherein the at least one power source controls frequencies of AC voltages used to excite longitudinal and transverse vibrations to selectively provide different forms of vibratory motion of the contact region in a plane parallel to the planes of the layers.

21. (Amended) A piezoelectric micromotor according to claim 6 ~~any of claims 5-20~~ wherein, for at least one layer, the at least one power supply electrifies a pair of quadrant electrodes that lie along a first diagonal of the layer with an AC voltage while a pair of quadrant electrodes along a second diagonal of the layer are grounded or floating, in order to excite elliptical vibrations in the vibrator.

23. (Amended) A piezoelectric motor according to claim 21 ~~or claim 22~~ wherein the at least one power supply controls the frequency of the AC voltage to selectively control the eccentricity of the elliptical motion.

24. (Amended) A piezoelectric micromotor according to claim 1 ~~any of the preceding claims~~ and comprising at least one relatively thin layer of non-piezoelectric material having large rectangular face surfaces defined by long and short edges and relatively narrow long and short edge surfaces.

27. (Amended) A piezoelectric micromotor according to claim 25 ~~or claim 26~~ wherein the other edges of the at least one non-piezoelectric layer are slightly longer than the corresponding other edges of the piezoelectric layers so that at least one edge surface of the non-piezoelectric layer protrudes from the piezoelectric layers.

29. (Amended) A piezoelectric micromotor according to claim 27 ~~or claim 28~~ wherein the contact region comprises a region of one of the at least one protruding edge surface.

30. (Amended) A piezoelectric micromotor according to claim 25 ~~any of claims 25-29~~ wherein the at least one non-piezoelectric layer is formed from a metal.

31. (Amended) A piezoelectric micromotor according to claim 1 ~~any of the preceding claims~~ wherein the power supply is capable of electrifying the electrodes to cause motion in a selectively arbitrary direction in the plane of edge surfaces on which the contact surface is located.

38. (Amended) A method according to claim 33 ~~any of claims 33 - 37~~ wherein the piezoelectric motor comprises at least one piezoelectric layer and wherein the first and second electrodes are on the same layer.

39. (Amended) A method according to claim 33 ~~any of claims 33 - 37~~ wherein the piezoelectric motor comprises a plurality of piezoelectric layers and wherein the first and second electrodes are on different layers.